DOCUMENT RESUME

ED 294 964 UD 026 192

TITLE	Estimates of the Population of Puerto Rico and the Outlying Areas: 1980 to 1986.
INSTITUTION	Bureau of the Census (DOC), Suitland, Md. Population Div.
PUB DATE	Jul 87
NOTE	10p.; For 1980-1983 report, see ED 252 618.
AVAILABLE FROM	Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.
PUB TYPE	Statistical Data (110) -- Legal/Legislative/Regulatory Materials (090) -- Collected Works - Serials (022)
JOURNAL CIT	Current Population Reports; Series P-25 n1009 Jul 1987
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Birth Rate; Death; *Demography; *Geographic Regions; Migration; *Population Growth; *Population Trends
IDENTIFIERS	American Samoa; Guam; Northern Mariana Islands; Puerto Rico; *United States Territories; Virgin Islands

ABSTRACT

This report presents estimates of the population for 1980 to 1986 for Puerto Rico, the American Virgin Islands, American Samoa, Guam, and the Northern Mariana Islands. Census counts for 1980 are also shown for each of the areas. Except for Puerto Rico, all of the areas are growing at a rate well above that of the United States (6.4 percent). Of all the areas, Guam has exhibited the most growth since 1980--19.6 percent. Although both Puerto Rico and the Virgin Islands have increased in population since 1980, both experienced population declines between 1985 and 1986: the Virgin Islands declined by 1.2 percent, Puerto Rico by 0.3 percent. The components of population decline are natural change (births minus deaths) and net migration (immigrants minus emigrants). Limitations of the estimates are discussed. Maps of the areas discussed are provided. Three tables illustrate the data. (BJV)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

6-8-88

CURRENT POPULATION REPORTS

Population Estimates and Projections

U.S. Department of Commerce
BUREAU OF THE CENSUS

Series P-25, No. 1009
Issued July 1987

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED294964

Estimates of the Population of Puerto Rico and the Outlying Areas: 1980 to 1986

(This report supersedes Current Population Reports, Series P-25, No.997. Estimates for Puerto Rico and the outlying areas for the 1970's, 1960's, and 1950's appear in Current Population Reports, Series P-25, Nos. 943, 603, and 336, respectively.)

This report presents estimates of the population for July 1, 1980, to 1986 for the Commonwealth of Puerto Rico, the Virgin Islands of the United States, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands. Census counts for 1980 are also shown for each of the areas. Small areas under American jurisdiction in the Pacific Ocean such as Midway, Wake, and Canton Islands, and Johnston Atoll are excluded; there were 1,082 persons on these islands at the time of the 1980 census.

The report also presents the components of population change for these areas for the 1980-86 period. The components of population change are natural change (births minus deaths) and net migration (the number of persons migrating into a particular area minus the number migrating from the area). In some of the areas shown, net migration is not estimated directly but is derived as a residual, that is, the difference between the total amount of change and natural change.

Except for Puerto Rico, all of the areas estimated are growing at a rate well above that of the United States (6.4 percent from April 1, 1980, to July 1, 1986). Of the areas, Guam has exhibited the highest percent growth since 1980—19.6 percent. Although Puerto Rico and the Virgin Islands have increased in population since 1980, both experienced population declines between 1985 and 1986. The Virgin Islands population declined by 1.2 percent (from 110,800 to 109,500), while Puerto Rico decreased by 0.3 percent (from 3,282,000 to 3,274,000).

METHODOLOGY

Because the availability of data relating to population change varies from area to area and the concentration of special population groups in some of the areas (e.g., the large concentration of Federally affiliated people on Guam) makes it difficult to rely on standard methods, different procedures are used for each area.

Puerto Rico. The estimates for Puerto Rico were based on the 1980 census and on reported statistics for each of the components of population change. The migration component was derived from monthly passenger statistics on arrivals to and departures from Puerto Rico compiled by the Commonwealth government. The migration estimate for Puerto Rico is the sum of centered 12-month moving averages of the reported monthly data. This compensates for bias introduced by short-term fluctuations in passenger data which reflect the seasonal movement of transients (tourists and other visitors) rather than the movement of migrants to a new residence. The movement of transients tends to cancel out over longer periods.

Virgin Islands. The estimates for the Virgin Islands and its component islands were developed using Component Method II. Components of change were added to the 1980 census base population to obtain a current estimate. In this method, net migration was estimated on the basis of school enrollment data, using the difference between the estimated population of elementary school age and the population of school age expected on the basis of the most recent census and births since the census. A more detailed discussion of the method can be found in Current Population Reports, Series P-25, No. 640.

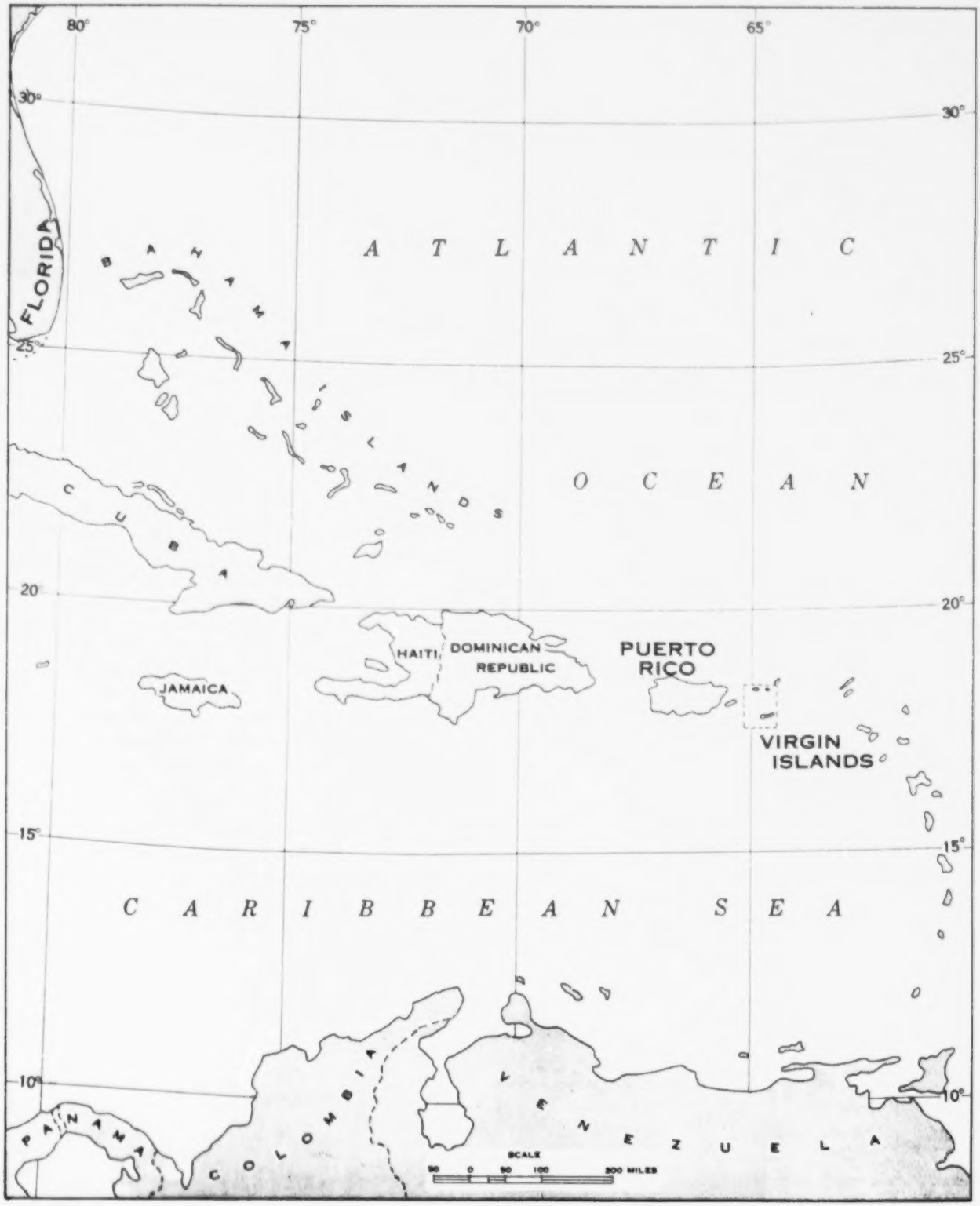
St. Thomas and St. John were estimated as a unit because the school data do not permit separate reliable estimates of migration for them (1980 population 44,372 and 2,472, respectively). The island estimates were prepared in the same way as those for the Virgin Islands as a whole, except that they were controlled to an independent U.S. Virgin Islands total as a last step.

American Samoa. The estimates for American Samoa were based on the 1980 census and births and deaths reported by the Government of American Samoa. Since there is no reporting system for migration, net migration must be estimated indirectly. For April 1, 1980, through July 1, 1986, the average annual amount of net migration was estimated based on the level of residual net migration for the 1977-80 period. The

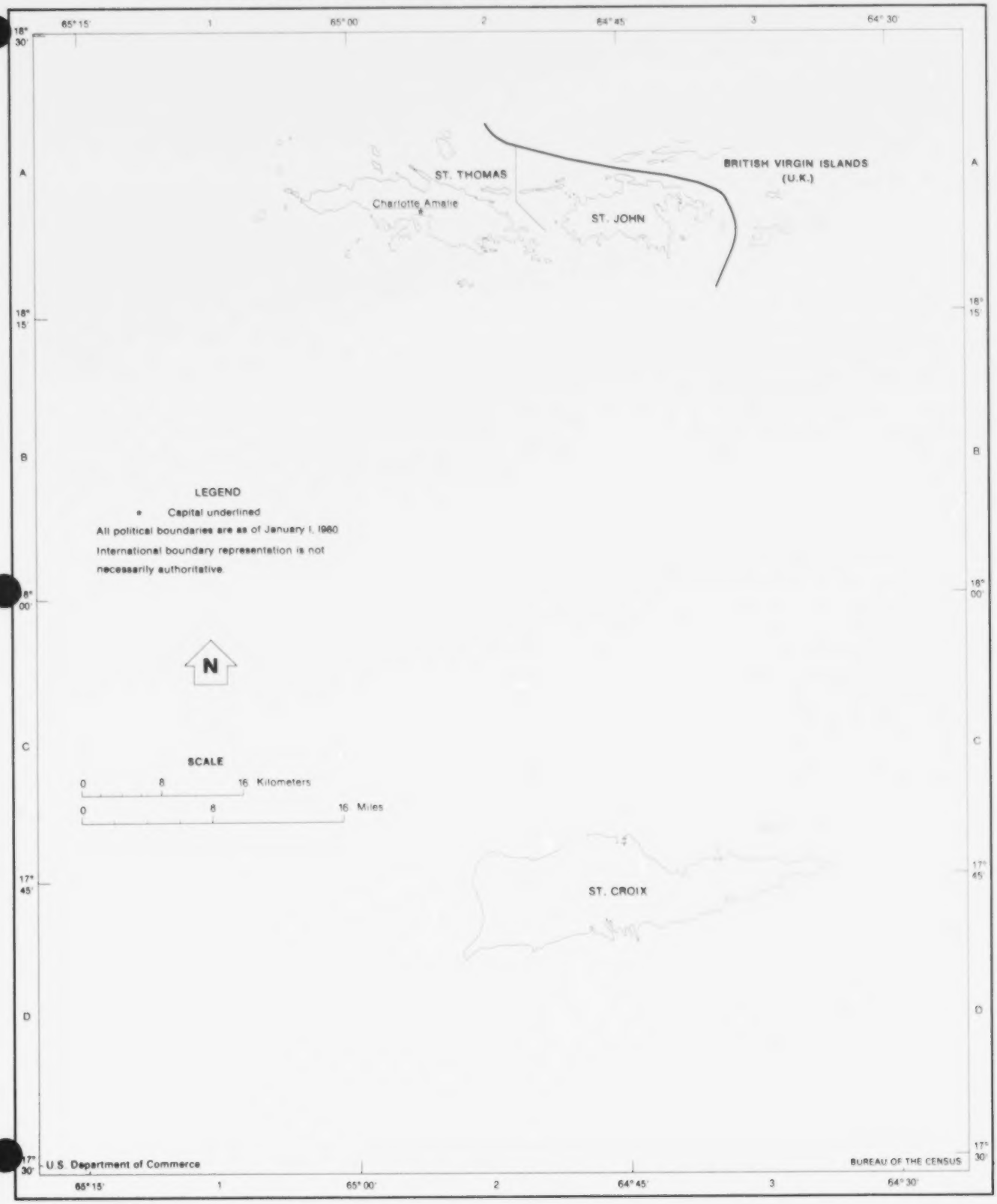
UD026 192

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

CARIBBEAN AREA



THE VIRGIN ISLANDS OF THE UNITED STATES-Islands



1977-80 period was chosen because the Government of American Samoa conducted a survey in 1977 which could be used in conjunction with the 1980 census and reported births and deaths to estimate net migration.

Guam. The estimates of the population of Guam were developed by adding the components of change to the relevant population base. The July 1, 1980, through 1986 estimates were derived using a base composed of the 1980 census count less the estimated population on April 1, 1980, who were born in the United States.[1] The population base is restricted because of the large and relatively transient Federally affiliated population for which migration is substantial and difficult to estimate. Rather than estimate migration for this population group, administrative records were used to determine the number of Federally affiliated persons on each estimate date. The following were added to the relevant population base:

1. *Natural increase.* The excess of births over deaths to the population is based on reported birth and death statistics. Excluded are the births and deaths occurring in the U.S. Naval Hospital, which are accounted for in step 4.
2. *Change in alien contract workers.* This category is primarily composed of contract workers brought in from the Philippines by the Department of Defense. The estimates are based on information provided by the Guam Department of Commerce.
3. *Net alien immigration.* These are persons accepted for permanent residence in the United States. The estimate is based on Immigration and Naturalization Service (INS) figures on immigrants who reported on their visa application that they intended to live on Guam. It is assumed that 40 percent of the immigrants each year either leave Guam or inaccurately reported their intention of living on Guam. This assumption is based on an analysis of expected versus actual change in the alien population between 1970 and 1980. Expected change was derived from INS records on immigrants and naturalizations plus the change in alien contract workers (see item 2 above). Actual change was based on the net change in the annual alien registration data collected by INS until 1982.
4. *Federally affiliated population.* The number of Armed Forces stationed on Guam was obtained from the U.S. Department of Defense. The Guam Department of Commerce provided data on the numbers of Federal civilian employees and dependents of both Federal civilian employees and the military.
5. *Guamanian inductions less discharges.* The number of persons in the Armed Forces in the United States who lived on Guam before joining the military is available from the Department of Defense. One half the change in pre-service residence on Guam was used to approximate inductions less discharges on Guam.

No data are available on the movement of the nonfederally affiliated population who are not covered above, but this component of net migration is probably not large.

Northern Mariana Islands. Net migration for April 1, 1980, to July 1, 1986, was estimated based on revised migration estimates for the period 1973 to 1980. The estimates for July 1, 1980, through 1986 were then derived by adding the components of population change to the 1980 census count. Since net migration is computed as a residual and vital statistics are likely to be underreported, the residual probably includes underreported births and deaths to a much greater extent than in American Samoa. For this reason, net migration is not shown for the Northern Marianas in table 1.

LIMITATIONS OF THE ESTIMATES

The areas for which estimates are presented in this report are unique in terms of size, location, and composition. This creates difficulty in developing appropriate estimating procedures, much less standard procedures that are applicable for all the areas. The poor quality and absence of adequate data make it difficult to prepare accurate estimates. The estimation techniques used in this report were selected on the basis of a test of methods against the 1970 census or 1980 census[2] or on the basis of the use of additional data sources not previously available. A comparison of the 1980 census results and the estimates for 1980 is shown in table A.

For Puerto Rico, the estimating technique now used remains essentially unchanged from that used for the 1960's and 1970's. The accuracy of the estimate depends very heavily on the cancellation in the migration statistics of the large number of visitors who travel between Puerto Rico and the mainland of the United States. Since gross arrival and departure data obviously contain a large number of tourists, net monthly figures are computed and smoothed using a 12-month moving average. This process provides rough approximations of net migration for Puerto Rico. The procedure estimated Puerto Rico's population to be less than 0.1 percent different from the 1980 census results.

In the case of the Virgin Islands, where Component Method II is employed, the difference between the April 1, 1980, estimate and the census count was trivial for the Territory as a whole, only 23 persons. For the island estimates, however, the estimating error was much higher (-7.7 percent for St. Croix and +8.1 percent for St. Thomas-St. John).

The estimating procedure used for American Samoa is a means of bridging a period when no possible independent migration estimates can be developed. The 1980 census and the 1977 survey provide reference points which, in combination with reported vital statistics, can be used to yield acceptable estimates of net migration for the intervening period. The actual migration for each year in the period is unknown. In the absence of any other information concerning the annual migration

[1]The April 1, 1980, American population on Guam was estimated based on data furnished by the Guam Department of Commerce and the U.S. Department of Defense.

[2]For more information on the 1970 test, see Current Population Reports, Series P-25, No. 731. The 1980 test results are reported in Series P-25, No. 919.

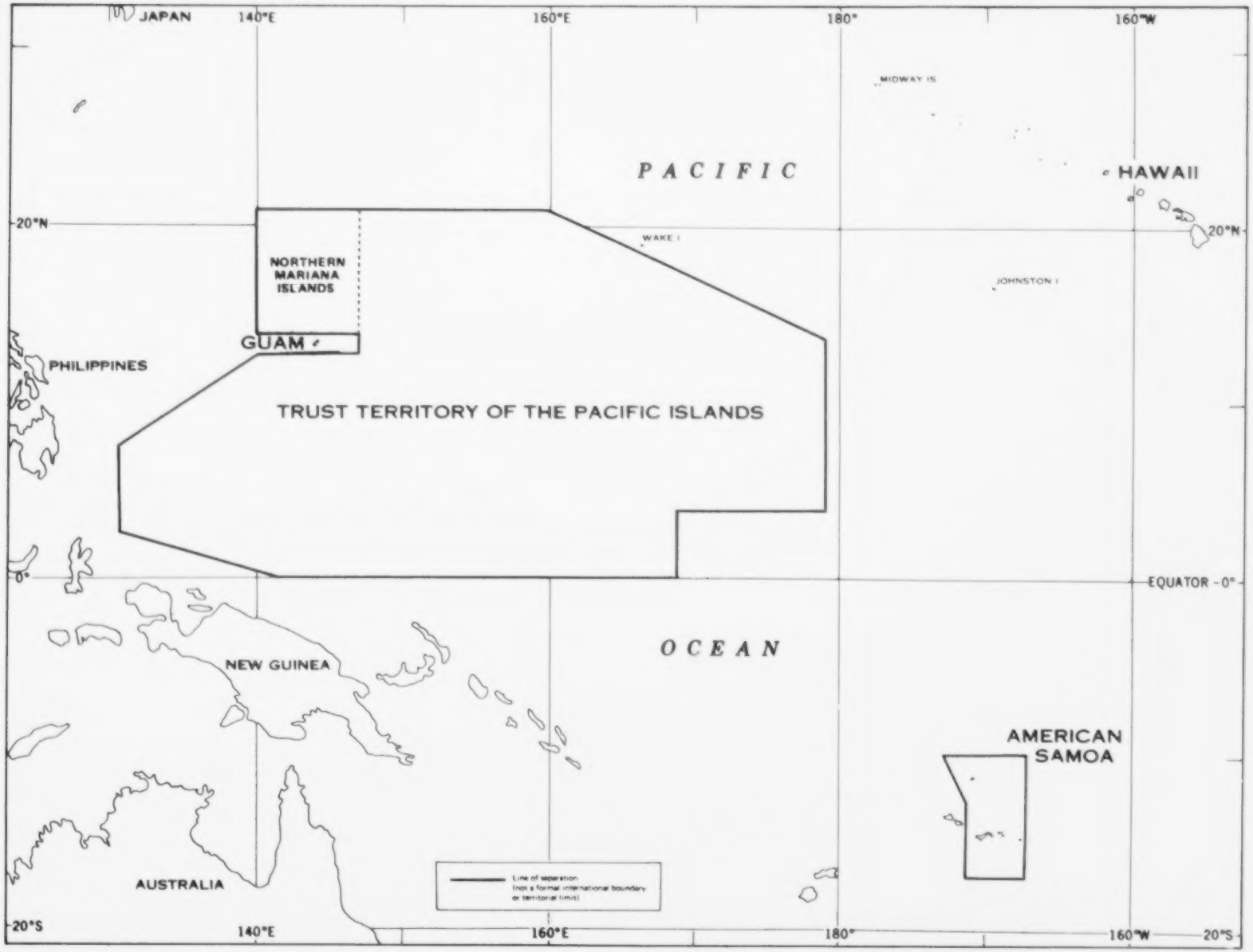

JAPAN
140°E
160°E
180°
160°W
MIDWAY IS.
PACIFIC
HAWAII
20°N
WAKE I.
JOHNSTON I.
NORTHERN MARIANA ISLANDS
GUAM
PHILIPPINES
TRUST TERRITORY OF THE PACIFIC ISLANDS
0°
EQUATOR - 0°
OCEAN
NEW GUINEA
AMERICAN SAMOA
AUSTRALIA
Line of separation
(not a formal international boundary or territorial limit)
20°S

Table A. Comparison of 1980 Census and Population Estimates for Puerto Rico and Outlying Areas

Area	1980 census	1980 population estimate	Error[1]	Percent error[2]
Puerto Rico	3,196,520	3,195,130	-1,390	-
Virgin Islands	96,569	96,546	-23	-
St. Croix	49,725	45,911	-3,814	-7.7
St. Thomas and St. John	46,844	50,635	3,791	8.1
American Samoa	32,297	32,260	-37	-0.1
Guam	105,979	116,251	10,272	9.7
Northern Mariana Islands	16,780	18,574	1,794	10.7

- Represents zero.
[1]The error is the difference between the 1980 population estimate and the 1980 census count.
[2]Base for percent is 1980 census count.

pattern, it has been assumed that there was a smooth annual net outmigration during this period, and that this pattern has continued on through each year until the estimate date.

The Government of American Samoa conducted a 20-percent household survey in 1985 which yielded a population estimate for May 1 of 35,277. The Bureau's estimate for July 1, 1985, is 36,300. Even without adjusting for the 2-month discrepancy, the Bureau's estimate falls within the 95-percent confidence interval of the survey estimate. This suggests that the Bureau's immigration assumption for American Samoa is reasonably accurate. Also, since the survey results and the Bureau's estimates do not vary significantly, the survey results have not been incorporated into the estimation process.

For Guam, as indicated earlier, the estimates are based on a special estimating method which yields point estimates of the various subcategories of the population. The test of this method for the 1960-70 period showed an overestimate of about 10 percent. This level and direction of error still existed in the estimates in 1980. Likely explanations for this include the lack of accurate migration data as well as conflicting information on persons who were born in the 50 States and on the special populations employed in the current methodology.

The estimates for the Northern Mariana Islands contain a similar level of error and are biased in the same direction. The 1980 error was 1,794 persons, or 10.7 percent. As was the case for Guam, the lack of any migration data combined with the lack of censuses or surveys during the intercensal period poses a serious problem in estimating the Northern Marianas population.

Efforts will continue to be made to correct the estimation errors to the degree that available methodologies and data will permit.

SOURCES OF DATA

Most of the statistics used to prepare the area estimates presented in this report were obtained from the local governments of the outlying areas. Data on births and deaths were obtained from the local governments for Puerto Rico and the outlying areas. Armed Forces data are based on figures provided by the Coast Guard and the Department of Defense. School enrollment data for the Virgin Islands were supplied by the Virgin Islands Department of Education.

For Puerto Rico, data on migration were supplied by the Puerto Rico Planning Board. The number of Federal civilian employees on Guam was obtained from the Guam Department of Commerce.

ROUNDING OF ESTIMATES

Each estimate in this report has been rounded independently to the nearest thousand (Puerto Rico) or hundred (other areas) from figures computed to the last digit. Hence, the sum of the parts may differ from the total shown. Percentages are based on unrounded numbers.

Table 1. Estimates of the Components of Change in the Resident Population of Puerto Rico and Outlying Areas of the United States: 1980 to 1986

(Resident population includes persons in the Armed Forces stationed in each area. Each estimate has been rounded to the nearest thousand for Puerto Rico and to the nearest hundred for the outlying areas)

Period and area	Population at end of period	Change		Components of change		
		Number	Percent	Births	Deaths	Net migration
APRIL 1, 1980, TO JULY 1, 1986						
Caribbean areas:						
Puerto Rico	3,274,000	77,000	2.4	418,000	136,000	-204,000
Virgin Islands	109,500	12,900	13.4	15,400	3,300	900
St. Croix	54,300	4,600	9.2	8,100	1,600	-2,000
St. Thomas and St. John	55,200	8,400	17.9	7,300	1,800	2,900
Pacific areas:						
American Samoa	37,300	5,000	15.5	8,000	900	-2,100
Guam	126,800	20,800	19.6	[1] 19,100	[1] 2,700	[2] 4,400
Northern Mariana Islands	19,700	2,900	17.2	4,000	600	**

** Because part of the residual migration in this area reflects underregistration of vital statistics, migration figures are not shown.

[1] Total births and deaths.
[2] Includes movement of members of the Armed Forces and their dependents.

Table 2. Estimates of the Resident and Civilian Populations of Puerto Rico and Outlying Areas: 1980 to 1986

(Each estimate has been rounded to the nearest thousand for Puerto Rico and to the nearest hundred for the outlying areas)

Date (July 1, except as noted)	Puerto Rico	Virgin Islands			American Samoa	Guam	Northern Mariana Islands
		Total	St. Croix	St. Thomas and St. John			
RESIDENT POPULATION							
1986	3,274,000	109,500	54,300	55,200	37,300	126,800	19,700
1985	3,282,000	110,800	55,300	55,500	36,300	123,900	19,100
1984	3,269,000	107,500	55,000	52,500	35,300	119,900	18,600
1983	3,265,000	103,700	53,800	49,900	34,500	116,000	18,200
1982	3,262,000	101,500	52,300	49,200	33,800	110,500	17,800
1981	3,245,000	98,300	50,800	47,500	33,100	109,900	17,300
1980	3,206,000	97,700	50,300	47,400	32,400	106,900	16,900
1980 (April 1)	3,197,000	96,600	49,700	46,800	32,300	106,000	16,800
CIVILIAN POPULATION							
1986	3,270,000	109,500	54,300	55,200	37,300	117,500	19,700
1985	3,277,000	110,800	55,300	55,500	36,300	114,300	19,100
1984	3,265,000	107,300	54,800	52,500	35,300	112,200	18,600
1983	3,261,000	103,700	53,800	49,900	34,500	108,000	18,200
1982	3,259,000	101,500	52,300	49,200	33,800	102,500	17,800
1981	3,242,000	98,200	50,700	47,500	33,100	101,400	17,300
1980	3,202,000	97,700	50,300	47,400	32,400	97,400	16,900
1980 (April 1)	3,192,000	96,600	49,700	46,800	32,300	96,700	16,800

•U.S. G.P.O. 1987-181-064:60045

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Official Business
Penalty for Private Use, $300

FIRST-CLASS MAIL
POSTAGE & FEES PAID
CENSUS
PERMIT No. G–58